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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/807,408	03/24/2004	Johannes Martinus Duisters	081468-0308928	3868

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EXAMINER

FULLER, RODNEY EVAN

ART UNIT PAPER NUMBER

2851

DATE MAILED: 08/08/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/807,408

Applicant(s)

DUISTERS ET AL.

Examiner

Rodney E. Fuller

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 May 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12, 14-20 and 22-32 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-12, 14-20 and 22-32 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 24 March 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Rodney Fuller
Primary Examiner

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____

- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on May 15, 2006 has been entered.

Drawings

2. New corrected drawings in compliance with 37 CFR 1.121(d) are required in this application because the drawings are informal. Specifically, the reference labels in all of the figures appear to be hand drawn. Likewise, the drawings in Figures 1-3 and 5-9 appear to be hand drawn. Applicant is advised to employ the services of a competent patent draftsman outside the Office, as the U.S. Patent and Trademark Office no longer prepares new drawings. The corrected drawings are required in reply to the Office action to avoid abandonment of the application. The requirement for corrected drawings will not be held in abeyance.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

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A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1-12, 14 and 22-32 are rejected under 35 U.S.C. 102(b) as anticipated by Yabu (US 4,907,021) or, in the alternative, under 35 U.S.C. 103(a) as obvious over Yabu (US 4,907,021) in view of Makii (US 2006/0165406).

Regarding claims 1, 25, 27-29 and 30-32, Yabu disclose “a first housing (Fig. 1, ref.# 4a-4c) including a first chamber (Fig. 1, area near the ref.# 3), a first optically transmissive window (Fig. 1, ref.# 1), a second optically transmissive window (Fig. 1, shown at bottom of projection system near ref.# 12), and at least one moveable lens (Fig. 1, ref.# 3b) positioned inside said first chamber, and a linear motor (Fig. 1, ref.# 7, 8; Fig. 2, ref.# 30; Fig. 3, ref.# 40 – Note: see alternative 103 rejection below) and at least one gas bearing (Fig. 1, ref.#5; column 3, line 45) within the first chamber for contactlessly moving the moveable lens; at least one gas exchange opening (Fig. 1, ref.# 6) in communication with said first chamber; and at least one additional optical element (Fig. 1, ref.# 23) positioned outside said first housing, wherein an optical path is

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defined by said first optically transmissive window, said second optically transmissive window, said at least one moveable lens, and said at least one additional optical element (Fig. 1, optical path from illumination system 22 to wafer 17)."

As noted above, Yabu discloses that the lens 3b is moved by air pressure in Figure 1 (ref.#s 7, 8). Figure 3 shows wherein the lens 3b is moved by a piezoelectric device 30, and Figure 4 shows wherein the lens 3b is moved by a diaphragm 40. In each case the lens is "linearly" moved along the optical axis. Thus, each mechanism that moves the lens can be considered to be a "linear motor." However, if the embodiments disclosed by Yabu are not considered to include a linear motor, which may include a (claim 22-24) "magnet part and a conductor part, wherein the lens is connected to one of said conductor part and said magnet part," then it would have been obvious to one of ordinary skill in the art to include a magnet / conductor type linear motor to move the lens. Makii discloses that a linear motor to move a lens in an optical system is routine in the art (See Makii, paragraphs 0144, 0145). Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize a magnet / conductor type linear motor to move the lens in order to provide more accurate and repeatable positioning of the lens.

Regarding claims 2 and 26, Yabu discloses "to receive radiation and convert said radiation into a beam of radiation (Fig. 1, ref.# 22) for illuminating a patterning device (Fig. 1, ref.# 1)."

Regarding claim 3, Yabu discloses "receiving a patterned beam of radiation (Fig. 1, ref.# 22) and for projecting (column 1, lines 11-13) said patterned beam of radiation onto a substrate (Fig. 1, ref.# 17)."

Regarding claim 4, Yabu discloses "wherein said at least one additional optical element (Fig. 1, ref.# 23) comprises one of a blind, a filter, a mirror, and a lens (Column 4, line 30 discloses that ref.#23 is an alignment scope, and an alignment scope would include at a minimum a lens).."

Regarding claim 5, Yabu discloses "a plurality of additional optical elements positioned outside of said first housing." (Column 4, line 30 discloses that ref.#23 is an alignment scope, and an alignment scope would include more optical elements than a single lens) (Fig. 1, ref.# 22 illumination system can also be considered an additional optical element)

Regarding claim 6, Yabu discloses "wherein said moveable lens (Fig. 1, ref.# 3) is a composite lens comprising a plurality of lens elements (Fig. 1, ref.# 3b, 3c and lens above ref.# 3) , at least one of which is moveable (Fig. 1, ref.# 3b) in the first chamber."

Regarding claim 7, Yabu discloses "wherein only said at least one moveable lens (Fig. 1, ref.# 3b) is a moveable part in said first chamber."

Regarding claim 8, Yabu discloses "wherein said at least one moveable lens (Fig. 1, ref.# 3b) is the only optical element in said first chamber (Fig. 1, the chamber can be considered to be between lens 3c and the lens above ref.# 3)."

Regarding claim 9, Yabu discloses "first gas exchange means (Fig. 1, ref.# 8) connected to said at least one gas exchange opening (Fig. 1, ref.# 6)."

Regarding claim 10, Yabu discloses "wherein said first gas exchange means (Fig. 1, ref.# 8) comprises at least one of a pump and a container with a gas."

Regarding claim 11, Yabu discloses "wherein the at least one gas exchange opening is sealable." (Fig. 1, shows the opening at ref.# 6 connected to and sealed to the housing of the lens.)

Regarding claim 12, Yabu discloses "wherein the at least one gas exchange opening (Fig. 1, ref.# 6, 7) comprises a gas supply opening and a gas exhaust opening."

Regarding claim 14, Yabu discloses "wherein said moveable lens is coupled to a gravity compensator (Fig. 1, ref.# 9) comprising a piston which is moveable in a cylinder with pressurizable gas."

6. Claims 15-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yabu (US 4,907,021) or, in the alternative, Yabu (US 4,907,021) in view of Makii (US 2006/0165406) and further in view of Murayama, et al. (US 6,341,006).

Yabu does not disclose (claim 15) "at least one second housing, with a second chamber inside said second housing and with a third and fourth optically transmissive window and accommodating at least one of said at least one additional optical element in said second chamber," (claim 16) "wherein said at least one second housing comprises at least one gas exchange opening in communication with said second chamber," (claim 17) "wherein said at least one gas exchange opening is sealable," (claim 18) a "second gas exchange means connected to said gas exchange opening,"

(claim 19) "wherein said first housing is releasably connected to at least one second housing," and (claim 20) "wherein one of said optically transmissive windows of said first housing and one of said optically transmissive windows of said at least one second housing form a common optically transmissive window." However, Murayama teaches that the use of separate gas filled chambers with separating windows for the illumination optics of a lithography system was well known in the art at the time of the invention. (See Murayama, Fig. 1, ref.# 18a-18d; column 3, lines 10-15) Thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Suzuki by including gas controlled multiple chambers with transmissive windows. The ordinary artisan would have been motivated to modify Suzuki as discussed above in order to reduce the time to fill the areas around the optical elements with gas as discussed by Murayama (see column 3, lines 1-9)

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Rodney E. Fuller whose telephone number is 571-272-2118. The examiner can normally be reached on 8:00am - 4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Diane Lee can be reached on 571-272-2399. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Rodney E Fuller
Primary Examiner
Art Unit 2851

August 4, 2006

A handwritten signature in black ink, appearing to read 'R. Fuller', is written over the printed name of the examiner.